

Appl. No. 10/614,307
Amdt. Dated March 12, 2007
Reply to Office action of December 21, 2006

Amendments to the Claims:

This listing of claims will replace all prior versions, and listings, of claims in the application:

Listing of Claims:

Claim 1 (Withdrawn): A method of fabricating an integrated circuit having conductor layers separated by insulating layers arranged substantially parallel to a plane of the integrated circuit, comprising:

forming an inductor within the conductor layers and the insulating layers and having magnetic flux lines substantially parallel to the plane of the integrated circuit upon operation of the integrated circuit.

Claim 2 (Withdrawn): A method as defined in claim 1 wherein:

the step of forming the inductor further comprises:

forming the inductor in a substantially coil-shaped configuration.

Claim 3 (Withdrawn): A method as defined in claim 1 wherein:

the step of forming the inductor further comprises:

forming a first segment of the inductor;

forming a second segment of the inductor proximate to and spaced apart from the first segment; and

electrically connecting the first segment and the second segment.

Claim 4 (Withdrawn): A method as defined in claim 3 wherein:

the step of forming the first segment further comprises:

forming the first segment of the inductor having a coil-shape in a first spiraling angular direction; and

the step of forming the second segment further comprises:

forming the second segment of the inductor having a coil-shape in a second spiraling angular direction.

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Claim 5 (Withdrawn): A method as defined in claim 3 wherein:
the step of forming the first segment further comprises:
forming the first segment of the inductor having a magnetic flux field in
a predetermined orientation upon operation of the integrated circuit; and
the step of forming the second segment further comprises:
forming the second segment of the inductor having a magnetic flux
field in the predetermined orientation upon operation of the integrated circuit.

Claim 6 (Withdrawn): A method as defined in claim 3 wherein the integrated
circuit includes other components for performing functions of the integrated circuit,
further comprising:

forming conductors between the first segment and the second
segment, the conductors electrically connecting the other components of the
integrated circuit.

Claim 7 (Withdrawn): A method as defined in claim 3 wherein:
the step of electrically connecting the first segment and the second
segment further comprises:

forming an electrical conductor in only one of the conductor layers
between the first segment and the second segment.

Claim 8 (Withdrawn): A method as defined in claim 1 wherein:

the step of forming the inductor further comprises:
forming a plurality of segments of the inductor; and
electrically connecting the segments.

Claim 9 (Withdrawn): A method as defined in claim 1 wherein:

the inductor includes an end;
the integrated circuit includes an edge; and
the step of forming the inductor further comprises:
forming the inductor with the end thereof proximate to the edge of the
integrated circuit.

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Claim 10 (Withdrawn): A method as defined in claim 9 wherein:
the aforementioned edge of the integrated circuit is a first edge;
the integrated circuit includes a second edge opposite the first edge;
the aforementioned end of the inductor is a first end;
the inductor includes a second end opposite the first end; and
the step of forming the inductor further comprises:
forming the inductor with the first end thereof proximate to the first
edge of the integrated circuit and the second end of the inductor proximate to the
second edge of the integrated circuit.

Claim 11 (Withdrawn): A method as defined in claim 9 wherein:
the magnetic flux lines of the inductor have a greatest density at the
end of the inductor proximate to the edge of the integrated circuit upon operation of
the integrated circuit.

Claim 12 (Withdrawn): A method as defined in claim 1 wherein the inductor
has a substantially rectangular cross section and includes horizontal legs and
vertical legs, further comprising:
forming the horizontal legs within the conductor layers; and
forming the vertical legs within the conductor layers and the insulating
layers.

Claim 13 (Withdrawn): A method as defined in claim 1 wherein the
aforementioned inductor is a first inductor, further comprising:
forming a second inductor within the conductor layers and the
insulating layers and having magnetic flux lines substantially parallel to the plane of
the integrated circuit upon operation of the integrated circuit, the second inductor
being substantially similar to the first inductor and offset laterally and longitudinally
from the first inductor.

Claim 14 (Withdrawn): A method as defined in claim 1 wherein the
aforementioned inductor is a first inductor, further comprising:
forming a plurality of inductors similar to the first inductor, each of the

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inductors having an inductance;

electrically connecting the inductors in a series in which each inductor, except a last inductor in the series, is followed by at least one inductor subsequent thereto and each inductor, except an initial inductor in the series, is preceded by at least one inductor;

electrically connecting the inductors with a plurality of switch devices, each switch device corresponding to at least one of the inductors, each switch device turning off the corresponding inductor and any inductors subsequent to the corresponding inductor when the switch device is in a first state, each switch device turning on the corresponding inductor when the switch device and the switch devices corresponding to any inductors preceding the corresponding inductor are in a second state, each of the inductors adding to an over-all inductance of the plurality of inductors when turned on;

selecting the over-all inductance of the plurality of inductors by selecting at least a portion of the inductors; and

setting the over-all inductance of the plurality of inductors by having in the first state at least one switch device for which the corresponding inductor and any subsequent inductors thereof are not selected.

Claim 15 (Withdrawn): A method as defined in claim 1 wherein the aforementioned inductor is a first inductor, further comprising:

forming a plurality of inductors similar to the first inductor, each of the inductors having an inductance;

electrically connecting the inductors with a plurality of switch devices, each switch device corresponding to one of the inductors and turning off the corresponding inductor when in a first state and turning on the corresponding inductor when in a second state, each of the inductors adding to an over-all inductance of the plurality of inductors when turned on;

selecting the over-all inductance of the plurality of inductors by selecting at least a portion of the inductors; and

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setting the over-all inductance of the plurality of inductors by having in the first state any switch devices that correspond to any inductors that are not selected and having in the second state any switch devices that correspond to any inductors that are selected.

Claim 16: Canceled.

Claim 17: Canceled.

Claim 18: Canceled.

Claim 19 (Currently Amended): An integrated circuit comprising: as defined in claim 18 wherein:

conductor layers arranged substantially parallel to an x-y plane of the integrated circuit;

insulating layers disposed between the conductor layers; and
an inductor formed within the conductor layers and the insulating layers and having magnetic flux lines through the conductor layers substantially parallel to the x-y plane of the integrated circuit upon operation of the integrated circuit, having first and second opposite ends, having a substantially straight length between the first and second opposite ends, and having first and second segments;

and wherein:

the second segment is electrically connected to, proximate to and spaced apart from the first segment;

the first segment of the inductor has a coil-shape in a first spiraling angular direction; and

the second segment of the inductor has a coil-shape in a second spiraling angular direction.

Claim 20: Canceled.

Claim 21 (Currently Amended): An integrated circuit as defined in claim 18 further-comprising:

conductor layers arranged substantially parallel to an x-y plane of the integrated circuit;

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insulating layers disposed between the conductor layers;
an inductor formed within the conductor layers and the insulating
layers and having magnetic flux lines through the conductor layers substantially
parallel to the x-y plane of the integrated circuit upon operation of the integrated
circuit, having first and second opposite ends, having a substantially straight length
between the first and second opposite ends, and having a first segment and a
second segment electrically connected to, proximate to and spaced apart from the
first segment;

other electronic components disposed under the conductor layers and
the insulating layers; and

electrical conductors disposed in the conductor layers between the first
segment and second segment of the inductor, the electrical conductors electrically
connecting the other electronic components.

Claim 22: Canceled.

Claim 23: Canceled.

Claim 24 (Currently Amended): An integrated circuit ~~as defined in claim 16~~
~~further~~ comprising:

conductor layers arranged substantially parallel to an x-y plane of the
integrated circuit;

insulating layers disposed between the conductor layers;

an inductor formed within the conductor layers and the insulating
layers and having magnetic flux lines through the conductor layers substantially
parallel to the x-y plane of the integrated circuit upon operation of the integrated
circuit, having first and second opposite ends, and having a substantially straight
length between the first and second opposite ends; and

an edge of the integrated circuit;

and wherein the first end of the inductor is proximate to the edge of the
integrated circuit.

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Claim 25 (previously presented): An integrated circuit as defined in claim 24 wherein the aforementioned edge of the integrated circuit is a first edge, further comprising:

a second edge of the integrated circuit opposite the first edge;

and wherein:

the first end of the inductor is proximate to the first edge of the integrated circuit; and

the second end of the inductor is proximate to the second edge of the integrated circuit.

Claim 26 (Original): An integrated circuit as defined in claim 24 wherein:

the magnetic flux lines of the inductor have a greatest density at the end of the inductor proximate to the edge of the integrated circuit upon operation of the integrated circuit.

Claim 27: Canceled.

Claim 28 (Withdrawn): An integrated circuit as defined in claim 16 wherein the aforementioned inductor is a first inductor, further comprising:

a second inductor formed within the conductor layers and the insulating layers and having magnetic flux lines substantially parallel to the plane of the integrated circuit upon operation of the integrated circuit, the second inductor being substantially similar to the first inductor and offset laterally and longitudinally from the first inductor.

Claim 29 (Withdrawn): An integrated circuit as defined in claim 29 wherein the aforementioned inductor is a first inductor, further comprising:

a plurality of inductors similar to the first inductor and including an initial inductor and a last inductor, each of the inductors having an inductance, the inductors being connected in a series in which each inductor, except the last inductor in the series, is followed by at least one inductor subsequent thereto and each inductor, except the initial inductor in the series, is preceded by at least one of the inductors; and

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a plurality of switch devices electrically connected to the inductors, each switch device corresponding to at least one of the inductors, each switch device turning off the corresponding inductor and any inductors subsequent to the corresponding inductor when the switch device is in a first state, each switch device turning on the corresponding inductor when the switch device and the switch devices corresponding to any inductors preceding the corresponding inductor are in a second state; and wherein:

each of the inductors adds to an over-all inductance of the plurality of inductors when turned on; and

the over-all inductance of the plurality of inductors is set by selecting at least a portion of the inductors and having in the first state at least one switch device for which the corresponding inductor and any subsequent inductors thereof are not selected.

Claim 30 (Withdrawn): An integrated circuit as defined in claim 16 wherein the aforementioned inductor is a first inductor, further comprising:

a plurality of inductors similar to the first inductor, each of the inductors having an inductance; and

a plurality of switch devices electrically connected to the inductors, each switch device corresponding to one of the inductors and turning off the corresponding inductor when in a first state and turning on the corresponding inductor when in a second state, and wherein:

each of the inductors adds to an over-all inductance of the plurality of inductors when turned on; and

the over-all inductance of the plurality of inductors is set by selecting at least a portion of the inductors and having in the first state any switch devices that correspond to any inductors that are not selected and having in the second state any switch devices that correspond to any inductors that are selected.